

REMARKS

Applicants have carefully considered the July 10, 2008 Office Action, and the amendments above together with the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1-20 were pending in this application. Claims 17-20 have been withdrawn from consideration pursuant to the provisions of 37 C.F.R. § 1.142(b).

In response to the Office Action dated July 10, 2008, claim 4 has been canceled and claim 1 has been amended to include a portion of claim 2. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed claims and disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification. Applicants submit that the present Amendment does not generate any new matter issue. Entry of the present Amendment is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claim 4 was rejected under 35 U.S.C. § 112, second paragraph. Applicants submit that the rejection is moot in view of the cancellation of claim 4 without prejudice.

Claims 1-8, 14 and 16 were rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Phillips et al. (U.S. Pat. No. 65,571,615, hereinafter "Phillips"). Applicants traverse.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the possession of one having ordinary skill in the art. *Helifix*

Ltd. v. Blok-Lok, Ltd., 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994). Moreover, in imposing the rejection under 35 U.S.C. § 102, the Examiner is required to specifically identify wherein an applied reference is perceived to identically disclose each feature of a claimed invention. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). That burden has not been discharged. Moreover, there are significant differences between the claimed subject matter and the article disclosed by Phillips that would preclude the factual determination that Phillips identically describes the claimed subject matter within the meaning of 35 U.S.C. § 102.

The diamond coating of the diamond coated tool of amended claim 1 is formed of an aggregation of diamond grains, and further, the diamond grains are each formed of an aggregation of diamond fine grains. That is, the diamond coating of the present subject matter has a double crystal structure.

In contrast to the present claimed subject matter, Phillips discloses a carbide substrate coated with a diamond film and the diamond film has a thickness of greater than about 10 microns and a grain size of less than about 0.5 microns. However, the diamond film of Phillips merely has a structure formed of an aggregation of diamond grains, that is, a single crystal structure. It is therefore a different diamond coating from that of amended claim 1 which has a double crystal structure. Evidence of the dissimilarity between the foregoing crystal structures is discussed below.

In the present application, Figure 2 shows the structure of a diamond coating 6 formed of diamond grains 2; and Figure 7 shows the status of diamond fine grains constituting a diamond grain. See paragraph [0062] of the present application as published. Turning to the prior art, Figure 4 of the Phillips shows elongated diamond grains extending from the inner side to the surface of the diamond film. Considering the scale of Figure 4 of Phillips being in microns while that of Figure 7 of the present application is in nanometers, it can arguably be considered that the diamond grains of Phillips correspond to the diamond grains of claim 1 of the present application. However, unlike the present application, Phillips does not disclose or suggest that each diamond grain is formed of diamond fine grains.

Figures 9 and 10 of the present application show the results of Raman spectroscopic analysis of diamond coatings obtained by the present subject matter. These figures show a local peak in the vicinity of $1100\sim 1150\text{ cm}^{-1}$. While Phillips also shows the result of Raman spectroscopic analysis of a diamond film in Figure 5, this figure does not show the vicinity of $1100\sim 1150\text{ cm}^{-1}$. It appears that a distinctive peak does not exist in this vicinity so it is not recorded as a data. From the presence or absence of a peak in the vicinity of $1100\sim 1150\text{ cm}^{-1}$, it can be found that the present subject matter and the invention of Phillips are different in their crystal structure.

As described in the present application, the surface of the substrate is carburized before it is coated with a diamond coating by a CVD method. The carburization is an indispensable process as indicated by the result of Embodiment 1. In contrast, Phillips only teaches that the diamond film is formed by a CVD method. Phillips does not teach or remotely suggest anything about carburization before coating or conditions such as a pressure of an atmosphere for a

diamond coating process. Accordingly, it is hardly possible that the diamond film of Phillips has a double crystal structure like the diamond coating of the present claimed subject matter.

The above argued differences between the claimed diamond coated tool and the Phillips's article undermines the factual determination that Phillips discloses the diamond coated tool identically corresponding to that claimed. *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 U.S.P.Q. 86 (Fed. Cir. 1986). Applicants, therefore, submit that the imposed rejection under 35 U.S.C. § 102 for lack of novelty as evidenced by Phillips is not factually viable and, hence, solicit withdrawal thereof.

Dependent claims 9-13 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Phillips in view of Kembaiyan et al. (U.S. Pat. App. Pub. No. 2004/0060742, hereinafter "Kembaiyan"). Applicants traverse.

Applicants incorporate herein the arguments previously advanced in traversal of the rejection under 35 U.S.C. § 102(b) predicated upon Phillips. The secondary reference to Kembaiyan does not cure the argued deficiencies of Phillips. Kembaiyan discloses cutters for earth-boring drill bits made from a tungsten carbide and having a diamond layer covering the cutting face. Kembaiyan does not disclose the thickness of the diamond layer or grain size of diamond grains constituting the diamond layer. It is assumed that the diamond layer is formed thick as the invention of Kembaiyan is related to the earth-boring drill bits (as shown in Figure 1 and paragraph [0005]). It can be hardly said that a base rock subjected to cutting would require excellent work surface roughness as in the field of micro processing to which the present subject matter is related. Accordingly, it can be considered that the diamond layer disclosed in

Kembaiyan has neither a surface as smooth as it is defined in the claim 1 of the present application nor a double crystal structure to achieve a smooth surface. Thus, even if the applied references are combined as suggested by the Examiner, the claimed subject matter will not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

It is believed that pending claims 1-3 and 5-16 are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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